

WHAT IS CLAIMED IS:

SYN 12.7

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1. A thermoformable film comprising at least one layer of polyamide containing solid anisotropic fillers and individual spherulites, wherein, said anisotropic fillers in said layer have in at least one first direction a size, expressed as the number-weighted average size for all of the dispersed components of the fillers, of no more than 10 nm and in at least one second direction perpendicular to said first direction a size of at least 50 times the size in the first direction, the number-average distance between the individual spherulites in said layer is no more than 50 nm, and the cores of the majority of the spherulites do not consist of an anisotropic filler particle.
2. The film of Claim 1, wherein said anisotropic fillers are so firmly anchored in said layer that, when said layer is cooled from the completely molten state at a cooling rate of between 10° and 20°C per minute, crystalline structures are formed which proceed from the surface of said anisotropic fillers.
3. The film of Claim 1, wherein the content of said anisotropic fillers in said layer is from 0.01 % and 4 % by weight, based on the total weight of said layer.
4. The film of Claim 1, wherein the individual spherulites in said layer have a number-average distance from each other of no more than 25 nm.
5. The film of Claim 1, wherein it comprises one or more further layers containing polyamide.
6. The film of Claim 1, wherein said layer contains polyamide which is formed from at least 90 wt.% ϵ -caprolactam.
7. The film of Claim 1, wherein said layer forms an outer layer of the film.

8. The film of Claim 1, wherein said film comprises a single-layer or multilayer heat-sealable sealing layer on an outer side.
- 5 9. The film of Claim 1, wherein said film further comprises at least one layer containing EVOH.
- 10 10. The film of Claim 1, wherein said film further comprises,
(i) at least one polymeric layer, or
(ii) a layer of metal, metal oxide or printing, between two layers.
11. The film of Claim 1, wherein said layer is a flat film, the production of which comprises:
(a) forming a polymer melt;
15 (b) shaping the polymer melt through a slot die; and
(c) cooling and solidifying the polymer melt, to form a solid film, on a rotating roll which has a temperature of at most 70°C, over a period of at least 0.1 seconds.
- 20 12. A process for producing a flat thermoformable film comprising at least one layer of polyamide containing solid anisotropic fillers, comprising:
(a) forming a polymer melt;
(b) shaping the polymer melt through a slot die; and
25 (c) cooling and solidifying the polymer melt, to form a solid film, on a rotating roll which has a temperature of at most 70°C, over a period of at least 0.1 seconds.

